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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appl. No.: 09/921,323 Confirmation No.: 5051
Applicant(s): Gillespie et al
Filed: August 2, 2001
Art Unit: 1771
Examiner: Jennifer A. Boyd
Title: SPUNBOND NONWOVEN FABRICS FROM RECLAIMED POLYMER

Docket No.: 034423/237429
Customer No.: 00826

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

DECLARATION UNDER 37 C.F.R. § 1.132

I, Jay Darrell Gillespie do hereby declare and say as follows:

1. I am employed by BBA Nonwovens Simpsonville, Inc. as Manager, Pilot Operations and I am a named inventor in the above-referenced patent application.
2. I have 20 years experience in the field of nonwovens fabric manufacture and melt spinning of synthetic polymer fibers.
3. I have studied the Official Action of July 22, 2005 and the prior art relied upon in this Official Action, namely the Kent U.S. Patent No. 5,885,705 and Taylor et al. U.S. Patent No. 6,737,009. I am familiar with the field of technology described in these patent documents, and I consider myself to possess a high level of skill in this field of technology.
4. I also have direct first-hand knowledge of and experience with the spunbond process and apparatus utilized in carrying out the invention described in Taylor et al. U.S. patent No. 6,737,009. The spunbond manufacturing equipment that was utilized in carrying out the spunbond nonwoven fabric manufacturing process claimed in the present application is the same spunbond manufacturing equipment that was used in producing the invention of the Taylor et al. patent. I have personal experience with the operation of this spunbond manufacturing line. Thus, I am quite familiar with the capabilities and limitations of this spunbond manufacturing

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equipment and method of operation, and I therefore believe that I am well qualified to make this declaration.

5. In the Official Action, the Examiner has concluded that it would have been obvious to one of ordinary skill in the art to use a reclaimed polymer as suggested by Kent as the polypropylene core of Taylor. Based upon my experience in the field of melt spinning of synthetic polymer fibers and my first hand knowledge and experience with the spunbond manufacturing line used in the invention of the Taylor et al. patent, this conclusion is in error. As explained below, there are very significant differences between the product and process described by Kent and the spunbond nonwoven product and process described in the Taylor patent. Because of these differences, it is not reasonable to assume that Kent's teachings concerning the manufacture of carpet yarn will translate to the manufacture of a spunbond nonwoven fabric.

a. The filaments of the carpet yarn described by Kent are considerably larger than the filaments of a spunbond nonwoven fabric such as that produced according to the Taylor patent. The Kent process uses a polymer throughput in the spinneret of 3.44 g/hole per minute and produces filaments of from 3 -75, preferably 15 to 28 denier per filament. The spunbond process used in carrying out the invention described in the Taylor reference has a polymer throughput of only 0.6 to 1.2 g/hole per minute and produces much finer filaments of less than 4 denier per filament, typically on the order of 2 to 3 denier per filament. The finer filaments of a spunbond fabric are more susceptible to breakage than the heavier filaments of a carpet yarn as described by Kent. Filament breakage is a significant problem in a spunbond process. Broken filaments can spot the forming wire and cause potential wraps that require the system to be shut down. Broken filaments also produce defects in the spunbond nonwoven fabrics that sometimes require removal.

b. In the spunbond process, the filaments remain individual and separate during the entire time that they travel from the spinneret, pass through the attenuation zone where they are drawn and stretched, and are ultimately deposited on a moving collection belt to form a web. Thus there is a significant opportunity for filament breakage during this process. This is significantly different from a carpet yarn process in which the individual filaments are condensed into a yarn shortly after emerging from the spinneret and are grouped together as a yarn during the stretching and drawing process.

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c. The spinning speeds used in the manufacture of carpet yarn are considerably lower than in a spunbond process. The Kent reference describes a spinning speed at the take-up of 500 meters per minute. The spunbond process used in the invention of the Taylor reference typically operates at a spinning speed in excess of 1800 to 3400 meters per minute. The higher speeds used in a spunbond process provide a further opportunity for filament breakage. This is a further reason why the skilled person would not assume that a process that can be used for producing carpet yarn would be applicable to the manufacture of a spunbond nonwoven fabric.

d. The Kent carpet yarn uses a different polymer than the spunbond nonwoven fabric of Taylor. Kent uses a polyamide polymer, whereas Taylor uses polypropylene. The melt strength of polyamides is greater than the melt strength of polypropylene. Thus, it would not be evident to assume that a lower melt strength polypropylene polymer could withstand the stresses of the higher spinning speeds required in a spunbond manufacturing operation.

e. Because of the greater melt strength of Kent's polyamide, the lower spinning speed used in the Kent process, and the larger size of the filaments, the carpet yarn filaments of the Kent patent are more capable of accommodating the defects or debris present in reclaimed polymer without filament breakage. In Examples 8 and 9 Kent even speaks of incorporating dirt into the core. I would not even consider attempting to incorporate dirt into our process. Great care is taken to filter out contaminants in our spinning process. The lower melt strength of polypropylene, the higher spinning speeds, and the finer filament size used in a spunbond process require clean reclaim with zero or very little contaminants to maintain good spinability. Dirt or large particulate matter would contribute to filament breakage.

6. Recognizing the significant differences between the manufacture of a carpet yarn and the manufacture of a spunbond nonwoven fabric, a person of ordinary skill in the art would therefore not assume that the techniques of polyamide carpet yarn production would be applicable to the manufacture of a spunbond polypropylene nonwoven fabric. The differences between the two technologies are so substantial that the ordinarily skilled person would have no reason to attempt to apply the technology of polyamide carpet yarn production to the manufacture of a spunbond polypropylene nonwoven fabric.

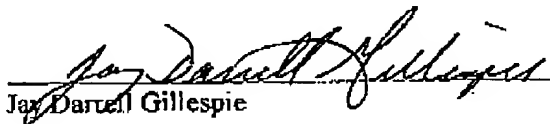
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I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.


Jay Darrell Gillespie

3-24-06
Date